

In the Claims

1. (Currently Amended) A high strength stainless steel pipe for use in oil wells, which has superior corrosion resistance, comprising on a mass percent basis:

about 0.005% to about 0.05% of C;

about 0.05% to about 0.5% of Si;

about 0.2% to about 1.8% of Mn;

about 0.03% or less of P;

about 0.005% or less of S;

about 15.5% to about 18% of Cr;

about 1.5% to about 5% of Ni;

about 1% to about 3.5% of Mo;

about 0.02% to about 0.2% of V;

about 0.01% to about 0.15% of N;

about 0.006% or less of O; and

the balance being Fe and unavoidable impurities,

wherein the following equations (1) and (2) are satisfied:

$$\text{Cr}+0.65\text{Ni}+0.6\text{Mo}+0.55\text{Cu}-20\text{C}\geq 19.5 \quad (1)$$

$$\text{Cr}+\text{Mo}+0.3\text{Si}-43.5\text{C}-0.4\text{Mn}-\text{Ni}-0.3\text{Cu}-9\text{N}\geq 11.5 \quad (2)$$

where Cr, Ni, Mo, Cu, C, Si, Mn, and N represent the respective contents on a mass percent basis.

2. (Currently Amended) The high strength stainless steel pipe ~~for use in oil wells,~~ according to Claim 1, further comprising about 0.002% to about 0.05% of Al on a mass percent basis.

3. (Currently Amended) The high strength stainless steel pipe ~~for use in oil wells,~~ according to Claim 1 ~~or 2~~, wherein the content of C is in the range of about 0.03% to about 0.05% on a mass percent basis.

4. (Currently Amended) The high strength stainless steel pipe ~~for use in oil wells,~~ according to ~~one of~~ Claims 1 ~~to 3~~, wherein the content of Cr is in the range of about 16.6% to less than about 18% on a mass percent basis.

5. (Currently Amended) The high strength stainless steel pipe ~~for use in oil wells,~~ according to ~~one of~~ Claims 1 ~~to 4~~, wherein the content of Mo is in the range of about 2% to about 3.5% on a mass percent basis.

6. (Currently Amended) The high strength stainless steel pipe ~~for use in oil wells,~~ according to ~~one of~~ Claims 1 ~~to 5~~, further comprising about 0.5% to about 3.5% of Cu on a mass percent basis.

7. (Currently Amended) The high strength stainless steel pipe ~~for use in oil wells,~~ according to Claim 6, wherein the content of Cu is in the range of about 0.5% to about 1.14% on a mass percent basis.

8. (Currently Amended) The high strength stainless steel pipe ~~for use in oil wells,~~ according to ~~one of~~ Claims 1 ~~to 7~~, further comprising at least one element selected from the group consisting of about 0.03% to about 0.2% of Nb, about 0.03% to about 0.3% of Ti, about 0.03% to about 0.2% of Zr, about 0.2% to about 3% of W, and about 0.0005% to about 0.01% of B on a mass percent basis.

9. (Currently Amended) The high strength stainless steel pipe ~~for use in oil wells,~~ according to ~~one of~~ Claims 1 ~~to 8~~, further comprising about 0.0005% to about 0.01% of Ca on a mass percent basis.

10. (Currently Amended) The high strength stainless steel pipe ~~for use in oil wells,~~ according to ~~one of Claims 1 to 9,~~ wherein the stainless steel pipe has a texture containing a martensite phase as a primary phase and a ferrite phase at a volume fraction of about 10% to about 60%.

11. (Currently Amended) The high strength stainless steel pipe ~~for use in oil wells,~~ according to Claim 10, wherein the ferrite phase has a volume fraction of about 15% to about 50%.

12. (Currently Amended) The high strength stainless steel pipe ~~for use in oil wells,~~ according to Claim 10 ~~or 11,~~ wherein the texture further contains an austenite phase at a volume fraction of about 30% or less.

13. (Currently Amended) A method for manufacturing a high strength stainless steel pipe for use in oil wells having superior corrosion resistance, comprising ~~the steps of:~~

preparing a steel pipe raw material which contains on a mass percent basis,

about 0.005% to about 0.05% of C;

about 0.05% to about 0.5% of Si;

about 0.2% to about 1.8% of Mn;

about 0.03% or less of P;

about 0.005% or less of S;

about 15.5% to about 18% of Cr;

about 1.5% to about 5% of Ni;

about 1% to about 3.5% of Mo;

about 0.02% to about 0.2% of V;

about 0.01% to about 0.15% of N;

about 0.006% or less of O; and

the balance being Fe and unavoidable impurities, and which satisfies the following equations (1) and (2);

~~making~~forming a steel pipe having a predetermined dimension from the steel pipe raw material; and

performing quenching-tempering treatment for the steel ~~pile~~pipe, in which the steel pipe is reheated to a temperature of about 850°C or more, ~~is then cooled to about 100°C or less at a cooling rate faster than that of air cooling, and is again heated to a temperature of about 700°C or less, the~~ equations being:

$$\text{Cr}+0.65\text{Ni}+0.6\text{Mo}+0.55\text{Cu}-20\text{C}\geq 19.5 \quad (1)$$

$$\text{Cr}+\text{Mo}+0.3\text{Si}-43.5\text{C}-0.4\text{Mn}-\text{Ni}-0.3\text{Cu}-9\text{N}\geq 11.5 \quad (2)$$

where Cr, Ni, Mo, Cu, C, Si, Mn, and N represent the respective contents on a mass percent basis.

14. (Currently Amended) The method ~~for manufacturing a high strength stainless steel pipe for use in oil wells,~~ according to Claim 13, wherein ~~pipe making~~pipe forming is performed by hot working while the steel pipe raw material is heated, and cooling is then performed to room temperature at a cooling rate faster than that of air cooling ~~so as to form the seamless steel pipe having a predetermined dimension, followed by the above~~ quenching-tempering treatment.

15. (Currently Amended) The method ~~for manufacturing a high strength stainless steel pipe for use in oil wells,~~ according to Claim 13 ~~or 14,~~ wherein, instead of the ~~above~~ quenching-tempering treatment, tempering treatment is performed by heating the steel pipe to a temperature of about 700°C or less.

16. (Currently Amended) The method ~~for manufacturing a high strength stainless steel pipe for use in oil wells,~~ according to ~~one of~~ Claims 13 ~~to 15,~~ wherein the steel pipe raw material further contains about 0.002% to about 0.05% of Al on a mass percent basis.

17. (Currently Amended) The method ~~for manufacturing a high strength stainless steel pipe for use in oil wells,~~ according to ~~one of~~ Claims 13 to 16, wherein the content of C is in the range of about 0.03% to about 0.05%.

18. (Currently Amended) The method ~~for manufacturing a high strength stainless steel pipe for use in oil wells,~~ according to ~~one of~~ Claims 13 to 17, wherein the content of Cr is in the range of about 16.6% to less than about 18%.

19. (Currently Amended) The method ~~for manufacturing a high strength stainless steel pipe for use in oil wells,~~ according to ~~one of~~ Claims 13 to 18, wherein the content of Mo is in the range of about 2% to about 3.5% on a mass percent basis.

20. (Currently Amended) The method ~~for manufacturing a high strength stainless steel pipe for use in oil wells,~~ according to ~~one of~~ Claims 13 to 19, wherein the steel pipe raw material further contains about 0.5% to about 3.5% of Cu on a mass percent basis.

21. (Currently Amended) The method ~~for manufacturing a high strength stainless steel pipe for use in oil wells,~~ according to Claim 20, wherein the content of Cu is in the range of about 0.5% to about 1.14% on a mass percent basis.

22. (Currently Amended) The method ~~for manufacturing a high strength stainless steel pipe for use in oil wells,~~ according to ~~one of~~ Claims 13 to 21, wherein the steel-pipe raw material further contains on a mass percent basis at least one element selected from the group consisting of about 0.03% to about 0.2% of Nb, about 0.03% to about 0.3% of Ti, about 0.03% to about 0.2% of Zr, about 0.2% to about 3% of W, and about 0.0005% to about 0.01% of B.

23. (Currently Amended) The method ~~for manufacturing a high strength stainless steel pipe for use in oil wells,~~ according to ~~one of~~ Claims 13 to 22, wherein the steel pipe raw material further contains about 0.0005% to about 0.01% of Ca on a mass percent basis.